



IMAGE

Rupture of right sinus of Valsalva into right atrium: Ultrasound, magnetic resonance, angiography and surgical imaging

Rupture d'un sinus de Valsalva droit dans l'oreillette droite : comparaison de l'imagerie échographique, de l'IRM, angiographique et des constatations peropératoires

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MOTS CLÉS

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Oreillette droite ;
Imagerie médicale

Case presentation

A 30-year-old man, with no previous medical history or cardiovascular risk factors, was admitted for dyspnoea. On examination, he was afebrile with a blood pressure of 122/80 mmHg, a heart rate of 110 bpm, signs of right heart failure, grade 5/6 systolic aortic murmur, and protodiastolic decrescendo murmur along the left sternal border. Electrocardiogram and chest X-rays were normal. Cardiac transthoracic and transoesophageal echocardiography (EnVisor®, Philips Medical Systems, the Netherlands) showed rupture of an aneurysm (16 mm × 9 mm) of the right sinus of Valsalva into the right atrium, which was enlarged (34 cm²), a normal aortic root size (35 mm for segment 0), no aortic insufficiency, and no dilation of inferior vena cava or subhepatic veins. Doppler analysis highlighted a left-to-right high-speed shunt flow from the sinus of Valsalva to the right atrium (Fig. 1A). Cardiac catheterization combined with oximetry data confirmed the presence of a left-to-right shunt. Aortography confirmed the diagnosis (Fig. 1B) and the coronary angiogram was normal. Cine magnetic resonance imaging revealed abnormal flow, draining from the aorta into

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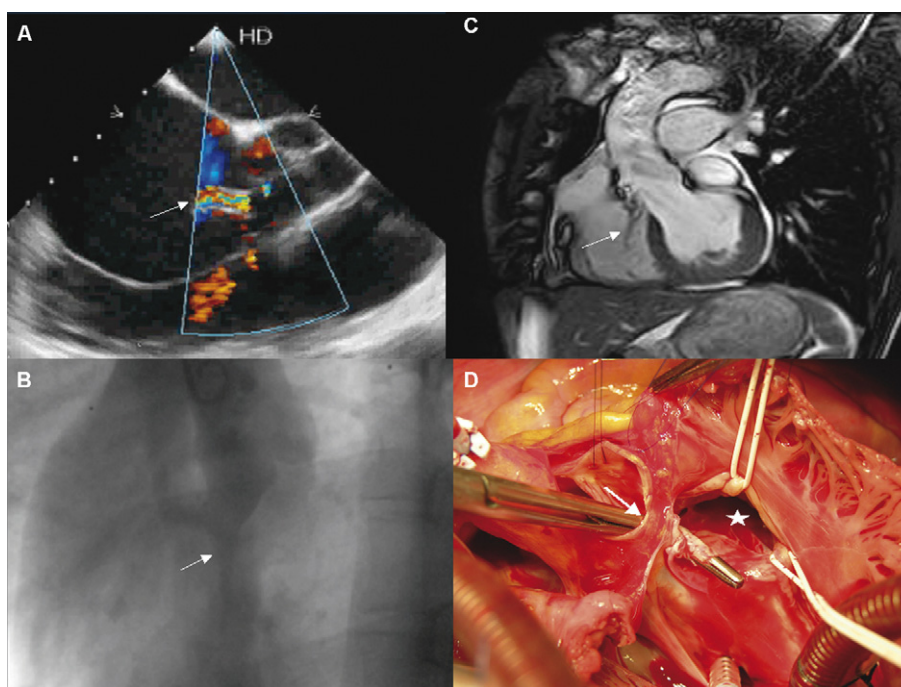


Figure 1. A: transoesophageal echocardiography Doppler analysis showing (arrow) left-to-right high-speed shunt flow from sinus of Valsalva to right atrium. B: angiogram demonstrating (arrow) left-to-right shunt flow caused by rupture of the right sinus of Valsalva into the right atrium. C: visualization of the shunt (arrow) using magnetic resonance imaging. D: surgical view of the rupture after right atriotomy; right atrium (*), entrance to the communication between the aorta and right atrium (arrow).

the right atrium (Fig. 1C). The patient underwent surgical repair. Macroscopic analysis after right atriotomy confirmed an orifice arising from the aorta (Fig. 1D). The openings of the aorta and the right atrium were sutured using a double patch in Dacron®, and right heart enlargement was corrected by insertion of a Carpentier tricuspid annuloplasty ring. Histological and microbiological analyses were negative. The patient made a good recovery, and was prescribed an angiotensin-converting enzyme inhibitor at hospital discharge. Because acquired aetiological factors were not detected, the retained diagnosis was ruptured of

an aneurysm of the right sinus of Valsalva into the right atrium.

Discussion

Aorta right atrial communication is a rare anomaly, affecting only 0.14–0.96% of patients undergoing open-heart surgery. A variety of mechanisms, such as endocarditis, acquired or congenital aneurysm, aortic dissection, Behçet's disease, surgery or trauma may precipitate fistula formation.